ABSTRACT

Laser diodes are formed with an outcoupling grating between two separate distributed Bragg reflectors. The devices have gain regions located between the reflector gratings for pumping the active region.

The outcoupling grating couples light out of the waveguide normal to the surface if the grating spacings are equal to an integer number of wavelengths of the light within the cavity. If the gratings are not such an integer number, the light is coupled out of the cavity off the normal.